EU sounds alarm on critical raw materials shortages

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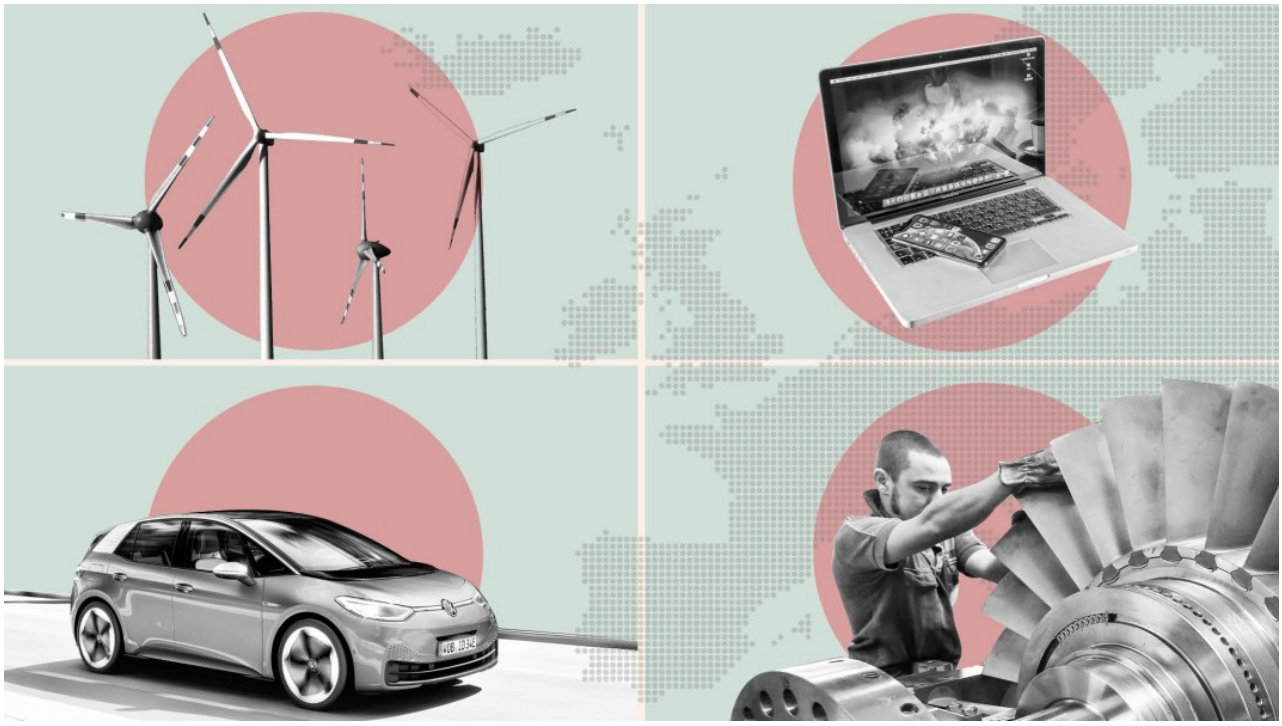
Transition to a low-carbon economy and pandemic disruption exacerbate Europe's dependence on problematic partners



The EU's over-reliance on imports of critical raw materials threatens to undermine crucial industries and expose the bloc to supply squeezes by China and other resource-rich countries, the European Commission will warn member states this week.

Shortages of elements used to make batteries and renewable energy equipment could also threaten the bloc's target of becoming climate neutral by 2050, a report by the Brussels executive will say.

The document is part of an urgent focus in Europe on security of imports of vital goods, as the coronavirus pandemic triggers transport disruption and growing tensions between western capitals and Beijing.

> The era of a conciliatory or naive Europe that relies on others to look after its interests is over

"The pandemic has revealed Europe's dependencies in certain products, critical materials and value chains," Thierry Breton, EU industry commissioner, told the Financial Times.

“The era of a conciliatory or naive Europe that relies on others to look after its interests is over.”

The emerging strategy prioritises securing the supply of a list of raw materials critical to European industries through exploration, investment and improved recycling.

The EU estimates that to meet its climate neutrality goal, it will need up to 18 times more lithium and five times more cobalt in 2030. The forecasts rise to 60 times more lithium and 15 times more cobalt by 2050.

Raw material	Raw material	Raw material
Strontium*	**Titanium***	**Bauxite***
Lithium*	Antimony	Light rare earth elements
Phosphorus	Baryte	Gallium
Magnesium	Scandium	Beryllium
Germanium	Natural graphite	Silicon metal
Bismuth	Hafnium	Natural rubber
Tantalum	Borate	Niobium
Tungsten	Cobalt	Heavy rare earth elements
Platinum group metals	Vanadium	Coking coal
Indium	Phosphate rock	Fluorspar

* New in 2020, in addition to 2017 list.

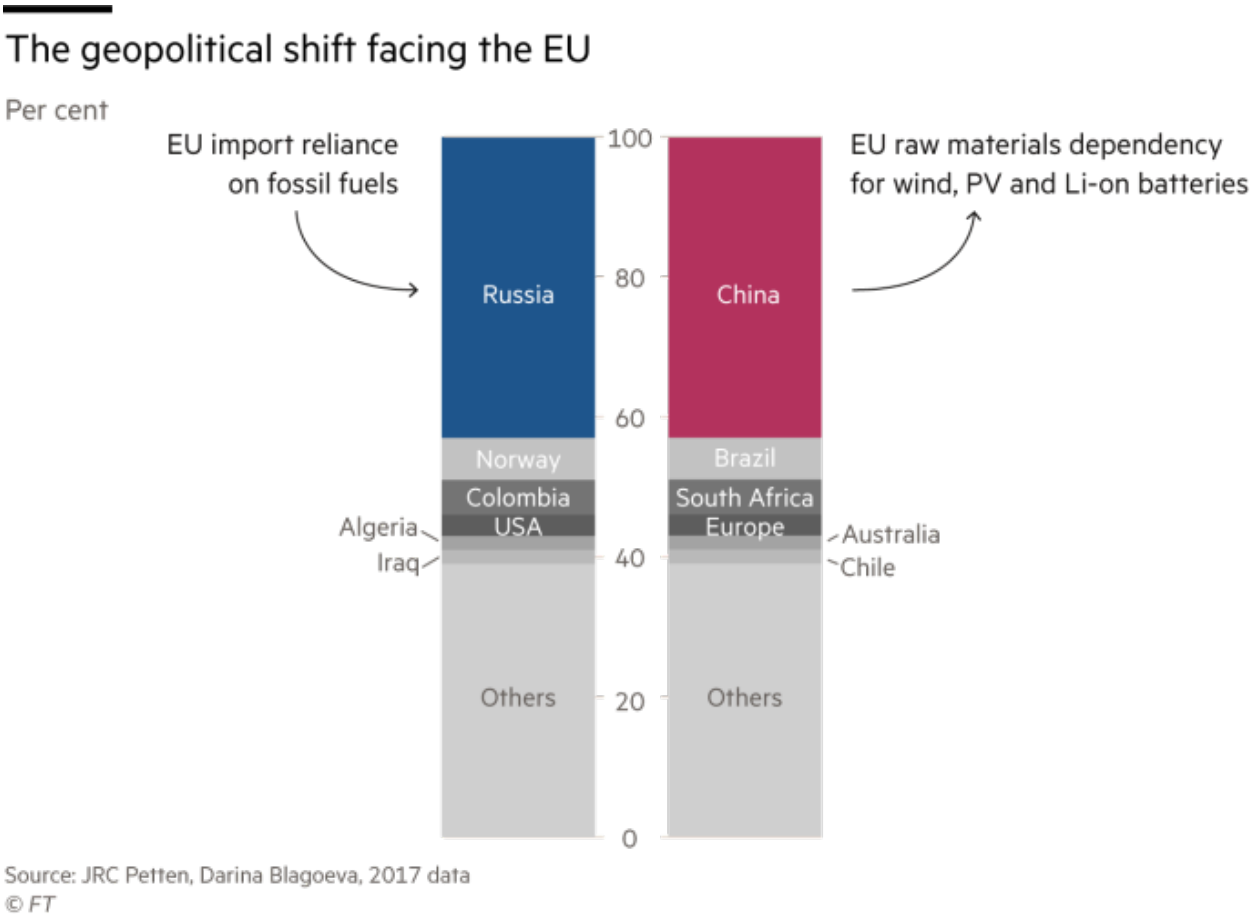
EU 2020 critical resources list

The list has been expanded to 30 materials from 27 in 2017, adding four metals while removing the gas helium, the FT has learnt.

The updated tally highlights growing concerns over China’s dominance in markets for common industrial metals, adding to longstanding worries over Beijing’s control of many “rare earth” elements used in consumer electronics and wind turbines. Bauxite — the main aluminium ore — and titanium, which is heavily used in the aerospace industry, have both been added.

As much as 93 per cent of the EU’s magnesium, which is used in products ranging from car seats to laptops, comes from China, according to the Commission. Brazil, ruled by Jair Bolsonaro, the populist president, supplies 85 per cent of the European bloc’s

niobium, a crucial part of steel alloys used in jet engines, girders and oil pipelines.



All but 2 per cent of EU borate supplies, used in fire retardants and the oil industry, come from Turkey, with which the bloc has an increasingly tense relationship under President Recep Tayyip Erdogan.

Case studies: Europe's vulnerable supply chains

Lithium-ion batteries, which use graphite; lithium production in Chile; and a truck at a copper-cobalt mine in the Democratic Republic of Congo © Bloomberg

GRAPHITE

China's dominance in battery raw materials can most clearly be seen in the market for graphite, a crystalised form of the element carbon that is used in the anode of a battery. China produces 65 per cent of the world's graphite and 86 per cent of the world's anodes for lithium-ion batteries, according to Benchmark Mineral Intelligence.

Last month Norwegian polysilicon maker Elkem said it planned to build Europe's first graphite factory in Heroya, Norway.

LITHIUM

Another crucial battery mineral, most of the world's lithium is mined in Australia and Chile before being processed in China. But a host of companies is aiming to mine and refine the element in Europe. Infinity Lithium is seeking a permit for a mine in Spain, while Savannah Resources wants to develop an open-pit mine in Portugal. In Germany start-up Vulcan Energy Resources is looking to extract it from geothermal waters, which offers the promise of a lower carbon footprint.

Europe's biggest resource, however, may be Rio Tinto's Jadar deposit in Serbia, which contains a unique lithium and borate mineral called jadarite. Still, none of these projects is likely to enter production in the next two to three years when, experts say, demand for lithium from European carmakers is set to surge.

COBALT

Over 70 per cent of the world's cobalt comes from the Democratic Republic of Congo (DRC), one of the poorest countries in the world. Over 10 per cent of that supply is

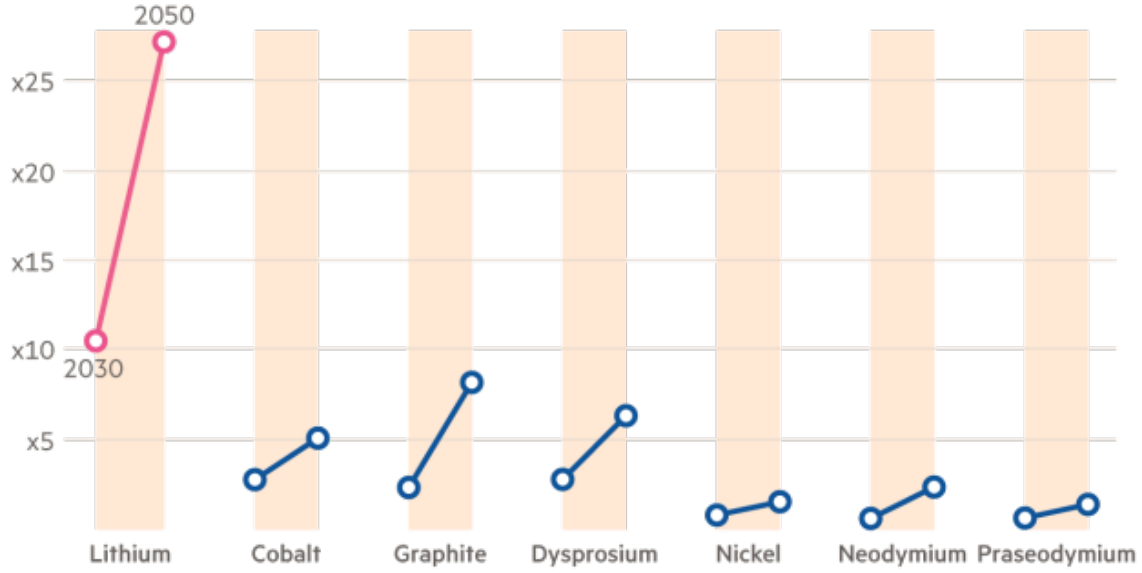
mined by hand, often by children. While it will be hard for Europe to reduce its reliance on the Congo, Terrafame is mining cobalt and nickel and plans to open a battery processing plant in Finland. Still, that is estimated to produce only about 800 tonnes of cobalt, in a total market of 140,000 tonnes globally, according to Darton Commodities.

While countries including the US and Australia have conducted similar strategic raw materials audits, Europe's dependency problems are greater because it lacks their abundant mineral deposits.

The EU's green agenda has driven the addition of strontium and lithium to the critical materials list. Strontium is used in magnets for electric cars, while lithium — like cobalt, which remains on the list from 2017 — is crucial to rechargeable batteries.

Rising demand for materials needed for renewable energy and e-mobility

Future EU demand as a multiple of current demand*



* Under a mid demand scenario
Source: European Commission
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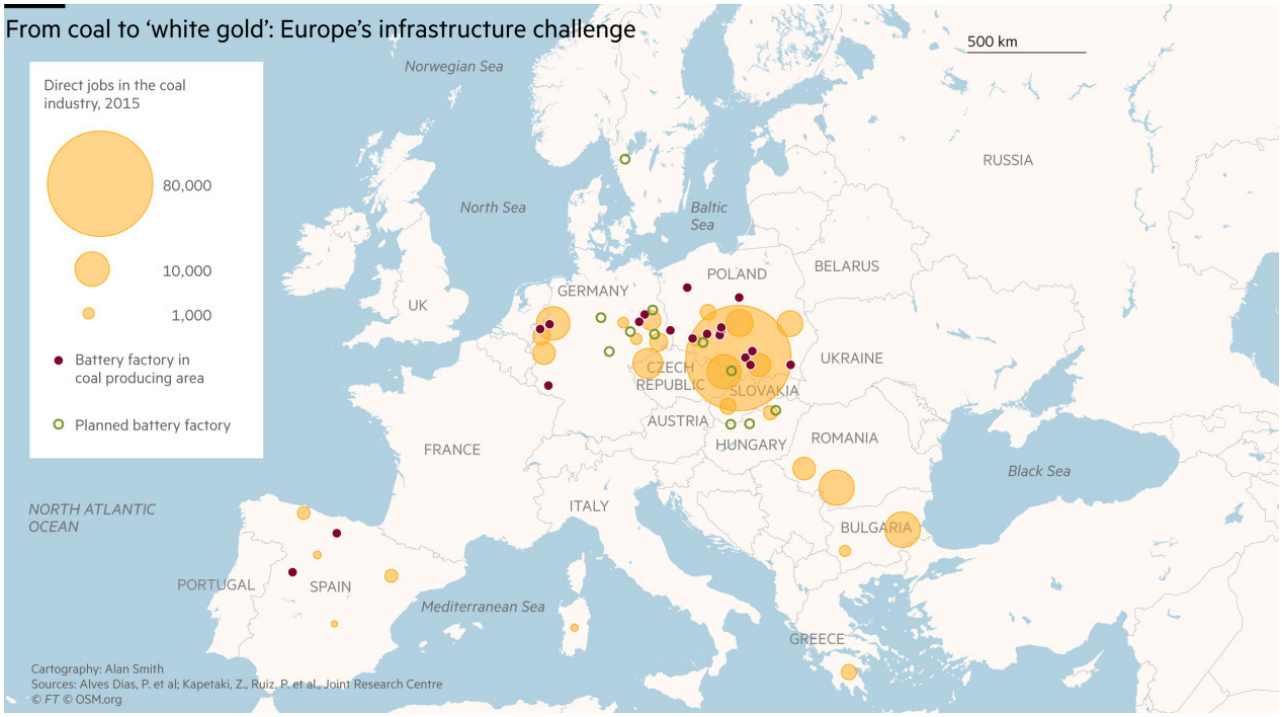
China dominates processing of all of these materials before they go into batteries, making European carmakers reliant on Chinese suppliers. While more than 60 per cent of the cobalt comes from the Democratic Republic of Congo, for example, more than 80 per cent is refined in China before being turned into battery chemicals. For lithium, almost all of the supply from Australia, the largest producer, is processed in China.

"Europe can reduce its import dependency, it can support domestic mining — but it's very unlikely in the critical battery raw materials that it will ever be self-sufficient," said Andy Leyland, an analyst at Benchmark Mineral Intelligence, a consultancy.



The European Investment Bank has pledged to invest €1bn to support a pan-European battery industry, including financing raw-materials extraction and processing, and the new classifications will help funnel investments.

"If you want the EU to fund your project they will have a number of boxes to tick . . . and [one is] if it is a critical raw material that you're producing," said Vincent Pedailles of Infinity Lithium, which is waiting for a permit to develop a mine in Spain.

Brussels also plans to promote recycling of vital elements and, where possible, greater production in the EU. One possible measure will be to use the EU's Copernicus earth observation satellite to find new resources and manage existing ones.

The commission's concerns chime with those of many member states who are promoting companies involved in strategic raw material production.

But the proposals are bound to reignite the debate on how much ramping-up or reshoring of production in the EU is possible — or desirable, given the environmental damage that comes with big mining projects.